

Darren L. Jackson

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PROFESSIONAL EXPERIENCE

Senior Associate Scientist, CIRES, University of Colorado-Boulder, CO **2004 - Present**
NOAA Earth System Research Laboratory, Physical Sciences Division, 2005 - Present

- Investigating methods to improve velocity transfer estimation of gas flux at ocean surface.
- Improving algorithms for satellite-derived near-surface temperature and specific humidity.
- Developing and applying bias and diurnal corrections for optimally interpolated SST product.
- Developing method to remove diurnal and inter-satellite biases from HIRS observations.
- Manage the acquisition, processing and archival of satellite data for the Satellite Remote Sensing group at ESRL/PSD.

NOAA Environmental Technology Laboratory, 2004 – 2005

- Developed multi-instrument retrieval of near-surface temperature and specific humidity using satellite microwave observations.
- Developed optimal interpolation method for blending SST observations derived from infrared and microwave satellite instruments.
- Examined interannual variations between HIRS observed upper tropospheric water vapor radiances with those derived from GFDL climate model simulations and Reanalysis products.
- Developed method to remove diurnal biases from HIRS observations.

Associate Scientist III, CIRES, University of Colorado-Boulder, CO **1999 - 2004**
NOAA Environmental Technology Laboratory

- Developed code to limb correct, cloud-clear, retrieve cloud parameters using 23 years of TOVS/ATOVS 1b data.
- Developed upper tropospheric humidity (UTH) retrieval, processed 20 years of UTH data, and analyzed UTH trends and variability.
- Studied local scales of convection using TRMM TMI precipitation data.
- Managed the acquisition, processing and archival of satellite data for the Satellite Remote Sensing group at ETL.

Professional Research Assistant, CIRES, University of Colorado-Boulder, CO **1994 -1999**
NOAA Climate Diagnostics Center

- Processed and analyzed the NESDIS Operational sounding clear column radiance data.
- Performed intercomparison of upper tropospheric water vapor data derived from TOVS, SSM/I, SAGE, and radiosonde data and compared these observed data to climate model simulations.

Graduate Research Assistant, Colorado State University, Fort Collins, CO **1989 - 1994**

- Analyzed temporal and spatial variability of four years of precipitable water derived from the SSM/I.

Undergraduate Research Assistant, Iowa State University, Ames, IA **1986 - 1989**

- Assisted in the research of retrieving ozone concentrations from satellite observations.

EDUCATION

Colorado State University, Master of Science, Atmospheric Science, **1989 - 1992**
GPA 3.9/4.0

Iowa State University, Bachelor of Science, Meteorology, GPA 3.7/4.0 **1985 - 1989**
Graduated with Distinction and Honors

TECHNICAL SKILLS

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- Expertise using UNIX, Linux and Microsoft Operating Systems.
 - Extensive experience with FORTRAN 77, FORTRAN 90, IDL, C, Bourne, Bash shells, Perl.
 - Proficiency in using Microsoft Office such as Word, Excel, PowerPoint and Adobe Illustrator.
 - Experience in writing journal articles and creating oral and poster presentations for conferences.

PROFESSIONAL MEMBERSHIPS

American Meteorological Society, Boston, MA

Member

1986 - Present

Publish scientific journal articles and provide reviews for journal articles

American Geophysical Union, Washington, D.C.

Member

1999 - Present

Publish scientific journal articles and provide reviews for journal articles

PROFESSIONAL SERVICE

CIRES Members' Council

Representative

2005 – Present

Attend meetings discussing the interests of CIRES members as they relate to CIRES governance and scientific direction.

CIRES Awards Committee

2006-2007

Served on committee that conducted the advertisement, evaluated nominations, and selected winners of the CIRES science and service awards. Served as Chairperson in 2007.

Executive/Fellows Meeting Representative

2008

Attend CIRES Executive and Fellows' Meetings as representative of the CIRES Members' Council. Report to CMC the topics of these meetings and bring forward to the meetings CIRES membership issues.

COMMUNITY SERVICE

- Commerce Children's Center Association Board Member (Oct 2007-present)
- Conducted several weather presentations at Peak to Peak Charter School, Lafayette, CO (2002-2006)
- Conducted weather presentation to Cub Scout Pack 63 (September 2007)
- Cub Scout Den Leader and Treasurer for Pack 63 (2003-2008)

JOURNAL PUBLICATIONS

Jackson, D.L., G.A. Wick, and F.R. Robertson, 2008: Improved multi-sensor approach to satellite-retrieved near-surface specific humidity observations. *J. Geophys. Res.*, in preparation.

Buehler, S.A., M. Kuvatov, V.O. John, M. Milz, B.J. Soden, D.L. Jackson, and J. Notholt, 2008: An upper tropospheric humidity data set from operational satellite microwave data. *J. Geophys. Res.*, accepted.

S.L. Castro, G.A. Wick, D.L. Jackson, and W.J. Emery, 2008: Error characterization of infrared and microwave sea surface temperature products for merging and analysis. *J. Geophys. Res.*, 113, C03010, doi:10.1029/2006JC003829, 2008.

Jackson, D.L., and B.J. Soden, 2007: Detection and correction of orbital drift on spectral radiances from HIRS/2 observations, *J. Atmos. Oceanic Technol.*, **24**, 1425-1438.

Jackson, D.L., G.A. Wick, and J.J. Bates, 2006: Near-surface retrieval of air temperature and specific humidity using multisensor microwave satellite observations, *J. Geophys. Res.*, **111**, D10306, doi:10.1029/2005JD006431.

Soden, B.J., D.L. Jackson, X. Huang, V. Ramaswamy, and M.D. Schwarzkopf, 2005: The radiative signature of upper tropospheric moistening, *Science*, doi:10.1126/science.1115602.

Huang, X., B.J. Soden, and D.L. Jackson, 2005: Interannual co-variability of tropical temperature and humidity: a comparison of model, reanalysis data and satellite observations, *Geophys. Res. Lett.*, **32**, L17808, doi:10.1029/2005GL023375.

Smith, D.F., A.J. Gasiekski, D.L. Jackson, and G.A. Wick, 2005: Local spatial scales of tropical deep convection inferred from TMI precipitation data. *IEEE Trans. Geosci. Remote Sensing*, **43**, 1542-1551.

Wylie, D.P., D.L. Jackson, W.P. Menzel, and J.J. Bates, 2005: Trends in global cloud cover in 22 years of HIRS observations. *J. Climate*, **18**, 3021-3031.

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- Jackson, D.L. and J.J. Bates, 2001: Upper tropospheric humidity algorithm assessment. *J. Geophys. Res.*, **106**, 32259-32270.
- Bates, J.J., D.L. Jackson, and Z. Bergen, 2001: Variability of the upper tropospheric humidity. *J. Geophys. Res.*, **106**, 32271-32282.
- Bates, J.J., and D.L. Jackson 2001: Trends in upper tropospheric humidity. *Geophys. Res. Let.*, **28**, 1695-1698.
- Garand, L. and Co-Authors, 2001: Radiance and Jacobian intercomparison of radiative transfer models applied to HIRS and AMSU channels. *J. Geophys. Res.*, **106**, 24017-24031.
- Bréon, F.-M., D.L. Jackson, and J.J. Bates, 2000: Calibration of the Meteosat water vapor channel using coincident NOAA/HIRS-12 measurements. *J. Geophys. Res.*, **105**, 11,925-11,933.
- Soden, B., and Co-Authors, 2000: An intercomparison of radiation codes for retrieving upper tropospheric humidity in the 6.3-micron band: A report from the 1st GVAP workshop. *Bull. Amer. Meteor. Soc.*, **81**, 797-808.
- Bréon, F.-M., D.L. Jackson, and J.J. Bates, 1999: Evidence of atmospheric contamination on the measurement of the spectral response of GMS-5 water vapor channel. *J. Atmos. Oceanic Technol.*, **16**, 1851-1853.
- Berg, W., J.J. Bates, and D.L. Jackson, 1999: Analysis of upper-tropospheric water vapor brightness temperatures from SSM/T2, HIRS, and GMS-5 VISSR. *J. Appl. Meteor.*, **38**, 580-595.
- Bates, J.J., and D.L. Jackson, 1997: A comparison of water vapor observations with AMIP-I simulations. *J. Geophys. Res.*, **102**, 21,837-21,852.
- Bates, J.J., X. Wu, and D.L. Jackson, 1996: Interannual variability of upper tropospheric water vapor band brightness temperature. *J. Climate*, **9**, 427-438.
- Stephens, G.L., D.L. Jackson, and I. Wittmeyer, 1996: Global observations of upper-tropospheric water vapor derived from TOVS radiance data. *J. Climate*, **9**, 305-326.
- Jackson, D.L., and G.L. Stephens, 1995: A study of SSM/I derived columnar water vapor over the global oceans. *J. Climate*, **8**, 2025-2038.
- Stephens, G.L., D.L. Jackson, and J.J. Bates, 1994: A comparison of SSM/I and TOVS column water vapor data over the global oceans. *Meteorol. Atmos. Phys.*, **54**, 183-201.
- Greenwald, T.J., G.L. Stephens, T.H. Vonder Haar, and D.L. Jackson, 1993: A physical retrieval of cloud liquid water over the global oceans using SSM/I observations. *J. Geophys. Res.*, **98**, 18, 471-18,488.
- Tjemkes, S.A., G.L. Stephens, and D.L. Jackson, 1991: Spaceborne observation of columnar water vapor: SSMI observations and algorithm. *J. Geophys. Res.*, **96**, 10,941-10,954.
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CONFERENCE EXTENDED ABSTRACTS

- Wick, G.A., D.L. Jackson, S.L. Castro, 2004: Production of an enhanced blended infrared and microwave sea surface temperature product. *2004 International Geoscience and Remote Sensing Symposium (IGARSS) Annual Meeting*, Anchorage, Alaska, September 20-24, 2004.
- Jackson, D.L. and B. Soden, 2004: The effects of orbital drift on spectral radiances from HIRS observations and GFDL climate model simulations. *13th Conference on Satellite Meteorology and Oceanography*, Norfolk, Virginia, September 20-23, 2004.
- Jackson, D.L. and G.A. Wick, 2004: Near-surface retrieval of air temperature and specific humidity using multi-sensor microwave satellite observations. *13th Conference on Satellite Meteorology and Oceanography*, Norfolk, Virginia, September 20-23, 2004.
- Wylie, D., D.L. Jackson, P. Menzel, and J.J. Bates, 2004: Trends in high clouds over the past 22 years. To be presented at *15th Symposium on Global Change and Climate Variations*, Seattle, Washington, January 11-15, 2004.
- Jackson, D.L., J.J. Bates, and D. Wylie, 2003: The HIRS Pathfinder Radiance data set (1979-2001). *12th Conference on Satellite Meteorology and Oceanography*, Long Beach, California, February 10-13, 2003.
- Wylie, D.P., W.P. Menzel, D.L. Jackson and J.J. Bates, 2003: Trends in high clouds over the last 20 years. *12th Conference on Satellite Meteorology and Oceanography*, Long Beach, California, February 10-13, 2003.
- Jackson, D.L. and J.J. Bates, 2001: Climate analysis with the 21-yr HIRS Pathfinder radiance clear-sky data set. *11th Conference on Satellite Meteorology & Oceanography*, Madison, Wisconsin, October 15-18, 2001.
- Jackson, D.L., and J.J. Bates, 2000: A 20-yr TOVS Pathfinder data set for climate analysis. *Tenth Conference on Satellite Meteorology*, Long Beach, CA, January 10-14, 2000.
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- Bates, J.J., Bergen Z., and D.L. Jackson, 2000: Upper tropospheric water vapor observations and modeling - a summary of recent progress. *Eleventh Conference on Global Change Studies*, Long Beach, CA, January 10-14, 2000.
- Berg, W., J.J. Bates, D.L. Jackson, and M. Deeter, 1998: Analysis of upper tropospheric water vapor brightness temperatures from SSM/T2 and HIRS. *Proc. Ninth Conference on Satellite Meteorology*, Paris, France, May 25-29, 1998, Amer. Met. Soc.
- Bates, J.J., and D.L. Jackson, 1998: Water vapor feedback during an enhanced hydrologic cycle. *Proc. Ninth Symposium on Global Change Studies*, Phoenix, AZ, January 12-16, 1998, Amer. Met. Soc.
- Bates, J.J., Wesley Berg, D.L. Jackson, and Merritt N. Deeter, 1998: Intercalibration and optimal assimilation of satellite water vapor information. *Proc. Second Symposium on Integrated Observing Systems*, Phoenix, AZ, January 12-16, 1998, Amer. Met. Soc.
- Bates, J.J., and D.L. Jackson, 1997: Seasonal and interannual variability of upper tropospheric humidity and clear sky outgoing longwave radiation. *Proc. Ninth Conference on Atmospheric Radiation*, Long Beach, CA, February 2-7, 1997, Amer. Met. Soc.
- Bates, J.J., and D.L. Jackson, 1997: A comparison of satellite water vapor observations with model simulations. *Proc. Eighth Symposium on Global Change Studies*, Long Beach, CA, February 2-7, 1997, Amer. Met. Soc., presenting author.
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CONFERENCE POSTERS

- Roberts, B., C.A. Clayson, D.L. Jackson, and F.R. Robertson, 2008: Investigating seasonal and interannual variability of latent heat flux using a high resolution satellite product, *AGU Joint Assembly*, Fort Lauderdale, Florida, May 27-30, 2008.
- Wick, G.A., and D.L. Jackson, 2008: Preliminary satellite-derived estimates of gas transfer velocity, *2008 Carbon Cycle and Ecosystems Joint Science Workshop*, Adelphi, MD, April 28 - May 2, 2008.
- Jackson, D.L., B.J. Soden, and L. Shi, 2007: Examination of the effect of increasing greenhouse gas concentrations on HIRS intercalibrated and diurnally-corrected observations, *2007 EUMETSAT Meteorological Satellite Conference and 15th Satellite Meteorology and Oceanography Conference*, Amsterdam, The Netherlands, September 24-28, 2007.
- Jackson, D.L., and B.J. Soden, 2006: A correction to the diurnal sampling bias in HIRS observations using GFDL climate model simulations, *14th Conference on Satellite Meteorology and Oceanography*, Atlanta, Georgia, January 30-February 2, 2006.
- Eleftheratos, K., K. Gierens, and D. Jackson, 2004, Upper tropospheric humidity: Climatology and Trends. *COST Action 723 "Cirrus – ISSRs" Meeting*, Oberpfaffenhofen, Germany, October 11-12, 2004.
- Jackson D.L. and B. Soden, 2004: The effects of orbital drift on spectral radiances from HIRS observations and GFDL climate model simulations. *13th Conference on Satellite Meteorology and Oceanography*, Norfolk, Virginia, September 20-23, 2004.
- Jackson D.L. and G.A. Wick, 2004: Near-surface retrieval of air temperature and specific humidity using multi-sensor microwave satellite observations. *13th Conference on Satellite Meteorology and Oceanography*, Norfolk, Virginia, September 20-23, 2004.
- Wick, G.A., D.L. Jackson, and S.L. Castro, 2003: Production of an enhanced blended infrared and microwave sea surface temperature product. *12th Conference on Satellite Meteorology and Oceanography*, Long Beach, California, February 10-13, 2003.
- Jackson, D.L., J.J. Bates, and D. Wylie, 2003: The HIRS Pathfinder Radiance data set (1979-2001). *12th Conference on Satellite Meteorology and Oceanography*, Long Beach, California, February 10-13, 2003.
- Wylie, D.P., W.P. Menzel, D.L. Jackson, and J.J. Bates, 2003: Trends in high clouds over the last 20 years. *12th Conference on Satellite Meteorology and Oceanography*, Long Beach, California, February 10-13, 2003.
- Jackson, D.L., and J.J. Bates, 2000: The TOVS Radiance Pathfinder data set. *Eleventh International TOVS Study Conference*, Budapest, Hungary, September 20-26, 2000.
- Bates, J.J., and D.L. Jackson, 2000: Interannual variability and long-term trends in upper tropospheric humidity. *Eleventh International TOVS Study Conference*, Budapest, Hungary, September 20-26, 2000.
- Jackson, D.L., and J.J. Bates, 2000: A 20-yr TOVS Pathfinder data set for climate analysis. *Tenth Conference on Satellite Meteorology*, Long Beach, CA, January 10-14, 2000.
- Breon, F.-M., D.L. Jackson, and J.J. Bates, 2000: Calibration of the Meteosat water vapor channel using coincident NOAA/HIRS-12 measurements. *Tenth Conference on Satellite Meteorology*, Long Beach, CA, January 10-14, 2000.
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Jackson, D.L., and J.J. Bates, 1999: Climate analysis of the TOVS Pathfinder data set. *Tenth International TOVS Study Conference*, Boulder, CO, January 27 - February 2, 1999.

ORAL PRESENTATIONS

- Jackson, D.L., and G.A. Wick, 2008: Application of Near-surface *In Situ* Oceanic Observations for Improved Satellite-based Retrievals of Near-surface Temperature and Humidity, 2nd Joint GOSUD/SAMOS Workshop, Seattle, WA, June 10-12, 2008.
- Jackson, D.L., G.A. Wick, and F.R. Robertson, 2007: Retrieval, validation, and multi-year analysis of near-surface humidity and temperature from satellite microwave observations from SSM/I, SSM/T-2 and AMSU-A. *2007 EUMETSAT Meteorological Satellite Conference and 15th Satellite Meteorology and Oceanography Conference*, Amsterdam, The Netherlands, September 24-28, 2007.
- Robertson, F.R., B. Roberts, D.L. Jackson, G.A. Wick, and T. Miller, 2007: ENSO and Decadal Variability of Ocean Surface Latent Heat Flux As Seen From Passive Microwave Satellite Algorithms. *2007 EUMETSAT Meteorological Satellite Conference and the 15th Satellite Meteorology & Oceanography Conference*, Amsterdam, The Netherlands, September 24-28, 2007.
- Jackson, D.L., G.A. Wick, and S.L. Castro, 2006: Impact of error characterization and diurnal warming corrections on multi-sensor SST analyses. *2006 International Geoscience and Remote Sensing Symposium (IGARSS) Annual Meeting & 27th Canadian Symposium on Remote Sensing*, Denver, CO, July 31-August 4, 2006.
- Wick, G.A., S.L. Castro, D.L. Jackson, and W.J. Emery, 2006: Error characterization of infrared and microwave sea surface temperature products for merging and analysis. *2006 International Geoscience and Remote Sensing Symposium (IGARSS) Annual Meeting & 27th Canadian Symposium on Remote Sensing*, Denver, CO, July 31-August 4, 2006.
- Jackson, D.L., and G.A. Wick, 2006: Impacts of bias corrections and diurnal warming on blended SST Analyses. *GHRSS-PP Science Team Meeting*, Boulder, Colorado, March 27-31, 2006.
- Huang, X., B.J. Soden, and D.L. Jackson, 2006: Co-variability of tropical temperature and humidity: a comparison of model, reanalysis data and satellite observation. *AGU 2006 Fall Meeting*, San Francisco, California, December 11-15, 2006.
- Robertson, F.R., G.A. Wick, D.L. Jackson, and M.G. Bosilovich, 2006: Interannual variability of tropical ocean evaporation: a comparison of microwave satellite assimilation results. *14th Conference on Interaction of the Sea and Atmosphere*, Atlanta, Georgia, January 30-February 2, 2006.
- Smith, D., A. Gasiewski, D. Jackson, and G. Wick, 2004: Spatial Scales of Tropical Precipitation Inferred from TRMM Microwave Imager Data. *19th Conference on Hydrology*, San Francisco, California, January 9-13, 2005.
- Smith, D., A. Gasiewski, D. Jackson, and G. Wick, 2004: Spatial Scales of Tropical Precipitation Inferred from TRMM Microwave Imager Data. *AGU 2004 Fall Meeting*, San Francisco, California, December 13-17, 2004.
- Menzel, W.P., D.P. Wylie, D.L. Jackson and J.J. Bates, 2004: Using 22 years of HIRS observations to infer global cloud cover. *29th Annual Climate Diagnostics & Prediction Workshop*, Madison, Wisconsin, October 18-21, 2004.
- Wick, G.A., D.L. Jackson, S.L. Castro, 2004: Production of an enhanced blended infrared and microwave sea surface temperature product. *2004 International Geoscience and Remote Sensing Symposium (IGARSS) Annual Meeting*, Anchorage, Alaska, September 20-24, 2004.
- Smith, D., A. Gasiewski, D. Jackson, and G. Wick, 2004: Local Spatial Scales of Tropical Deep Convection Inferred from TRMM Precipitation Data. *2004 International Geoscience and Remote Sensing Symposium (IGARSS) Annual Meeting*, Anchorage, Alaska, September 20-24, 2004.
- Smith, D., A. Gasiewski, D. Jackson, and G. Wick, 2004: Local scales of tropical deep convection inferred from TMI precipitation data. *8th Specialist Meeting on Microwave Radiometry and Remote Sensing Applications*, Rome, Italy, February 24-27, 2004.
- Wylie, D., D.L. Jackson, P. Menzel, and J.J. Bates, 2004: Trends in high clouds over the past 22 years. *15th Symposium on Global Change and Climate Variations*, Seattle, Washington, January 11-15, 2004.
- Smith, D., A. Gasiewski, D. Jackson, and G. Wick, 2003: Local spatial scales of tropical deep convection inferred from SSM/I precipitation data. *AGU 2003 Fall Meeting*, San Francisco, CA, December 8-12, 2003.
- Wick, G.A., D.L. Jackson, and S.L. Castro, 2003: Production of an Enhanced Blended Infrared and Microwave Sea Surface Temperature Product. *2003 IEEE AP-S International Symposium on Antennas and Propagation and USNC/CNC/URSI North American Radio Science Meeting*, Columbus, Ohio, June 22-27, 2003.

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- Prata, F., J.J. Bates, and D.L. Jackson, 2002: A new method for the retrieval of upper troposphere/lower stratosphere sulfur dioxide from global long-term TOVS measurements. *Twelfth International TOVS Study Conference*, Lorne, Victoria, Australia, February 26 - March 5, 2002.
- Bates, J.J., and D.L. Jackson, 2000: Interannual variability and long-term trends in upper tropospheric humidity. *Eleventh International TOVS Study Conference*, Budapest, Hungary, September 20-26, 2000.
- Bates, J.J., Bergen Z., and D.L. Jackson, 2000: Upper tropospheric water vapor observations and modeling - a summary of recent progress. *Eleventh Conference on Global Change Studies*, Long Beach, CA, January 10-14, 2000.
- Berg, W., J.J. Bates, D.L. Jackson, and M. Deeter, 1998: Analysis of upper tropospheric water vapor brightness temperatures from SSM/T2 and HIRS. *Proc. Ninth Conference on Satellite Meteorology*, Paris, France, May 25-29, 1998, Amer. Met. Soc.
- Bates, J.J., and D.L. Jackson, 1998: Water vapor feedback during an enhanced hydrologic cycle. *Proc. Ninth Symposium on Global Change Studies*, Phoenix, AZ, January 12-16, 1998, Amer. Met. Soc.
- Bates, J.J., Wesley Berg, D.L. Jackson, and Merritt N. Deeter, 1998: Intercalibration and optimal assimilation of satellite water vapor information. *Proc. Second Symposium on Integrated Observing Systems*, Phoenix, AZ, January 12-16, 1998, Amer. Met. Soc.
- Bates, J.J., and D.L. Jackson, 1997: Seasonal and interannual variability of upper tropospheric humidity and clear sky outgoing longwave radiation. *Proc. Ninth Conference on Atmospheric Radiation*, Long Beach, CA, February 2-7, 1997, Amer. Met. Soc.
- Bates, J.J., and D.L. Jackson, 1997: A comparison of satellite water vapor observations with model simulations. *Proc. Eighth Symposium on Global Change Studies*, Long Beach, CA, February 2-7, 1997, Amer. Met. Soc., presenting author.
- Bates, J.J., and D.L. Jackson, 1996: Opening windows to cool the greenhouse: Observational evidence of a tropical water vapor balance. *Second International Conference on the Global Energy and Water Cycle*, Washington, D.C., June 17-21, 1996.
- Bates, J.J., and D.L. Jackson, 1995: Rethinking the water vapor feedback. *AGU 1995 Fall Meeting*, San Francisco, CA December 14-18, 1995.
- Stephens, G.L., D.A. Randall, D.L. Jackson, T.J. Greenwald, and I.L. Wittmeyer, 1993: Pre-GEWEX studies of hydrology and climate. Poster session for the 30th session of the Colorado State University Atmospheric Science Department
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UNREFERRED REPORTS/ARTICLES

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- Jackson, D.L., G.A. Wick, and F.R. Robertson, 2008: Improved multi-sensor near-surface specific humidity satellite retrieval. Submitted to Flux News Issue 5 January 2008 issue. Newsletter of the WCRP working group on surface fluxes.